A SUMMARY OF THE EXAMINER INTERVIEW

Applicants thank Examiner Sims for being available for, and participating in, a telephonic interview that occurred on October 8, 2010, in which the Applicants' representative discussed the differences between the claimed invention and the references cited (e.g., U.S. Publication No. 2002/0110823 to Hogan) in support of the 35 U.S.C. § 103(a) rejection of independent claims 25, 55, 85, and 91 for CRNI.83071 (Application No. 09/981,248), as well as independent claims 1, 18, and 35 for CRNI.114070 (Application No. 10/826,595). Specifically, Applicants' representative brought to the attention of the Examiner that inventive embodiments of the present invention are now recited by the claims and are not found in the combination of references as cited. The claims have been rearranged between the two applications in order to consolidate these claimed embodiments as shown below.

Two Patentable Embodiments Now Recited by the Claims of CRNI.83071 (Application No. 09/981,248)

1. When a genetic test result value is unavailable, using "demographic information" about the patient then genetic-mutation likelihood of the "general population" to calculate the likelihood that a patient expresses a genetic mutation.
    a. CRNI.83071 – Claim 85
    b. CRNI.114070 – Claim 35 (Canceled from CRNI.114070 and added to CRNI.83071 as independent claim 94)
        i. The claimed process employs a particular hierarchy of factors to seek and use in order to calculate the likelihood of the presence of a genetic mutation. Specifically, when the genetic test result value cannot be obtained, the process first attempts to use demographic information and then, if unavailable, uses genetic variability within the general population.

2. When a person is exposed to a particular dosage of an agent on a list of risk-associated agents, generating a low-risk or high-risk clinical response based on the particular dosage applied.
    a. CRNI.83071 – Claim 91
        i. The decision of whether conduct a low-risk or high-risk clinical response is based on two criteria (i.e., whether the person has been exposed to an agent on the list of risk-associated agents, and whether a dosage of the agent exceeds a predetermined dangerous level). Further, once the decision to conduct the low-risk or high-risk clinical response is made, there are specific actions that are grouped with each response.

Two Patentable Embodiments Now Recited by the Claims of CRNI.114070 (Application No. 10/826,595)

1. Determining whether to seek a clinician's authorization to order a test of a patient when a genetic test result value is unavailable for the patient.
    a. CRNI.114070 – Claim 1
    b. CRNI.83071 – Claim 25 (Canceled from the CRNI.83071 and added to CRNI.114071 as dependent claim 52)
    c. CRNI.83071 – Claim 55 (Canceled from the CRNI.83071 and added to CRNI.114071 as independent claim 58)
        i. The administration of a test on a patient to ascertain a genetic test result value is initially conditioned on the criteria of (a) the likelihood of genetic variation(s) of the associated gene occurring, and (b) the severity of interaction of the occurring genetic variation(s) with the clinical agent.
        ii. Based on the above determination (using criteria (a) and (b)), the process either automatically orders the test without the clinician's input (presumptively when the likelihood and severity are high), or seeks authorization of the clinician to order the test (presumptively when the likelihood and severity are low).

2. When a determination indicates a risk of damage from not administering a clinical agent is greater than the risk of damage by lowering the dosage, displaying a notification window that communicates a lower value of dosage. Otherwise, displaying a notification that communicates a warning that the clinical agent should not be administered.
    a. CRNI.114070 – Claim 18
        i. The contents of the notification window correspond to the result of the determination of "*whether the risk of damage from not administering the clinical agent is greater than the risk of damage by lowering the dosage of the clinical agent*" (emphasis added).
        ii. Specifically, "when the risk of damage is less than not administering the clinical agent," the notification window presents "a value of a lower dosage of the clinical agent to be prescribed."
        iii. On the other hand, "when the risk of damage of not administering the clinical agent is less than lowering the dosage of the clinical agent," the notification window presents "a warning to the clinician that the clinical agent should not be administered to the person."

REMARKS

The Non-Final Office Action mailed June 9, 2010, has been received and reviewed. Prior to the present communication, claims 25-30, 55-60, 85-89, and 91-93 were pending in the subject application. All claims have been rejected under 35 U.S.C. § 103(a). Each of claims 85, 87, and 91-93 has been amended herein, while claims 25-30 and 55-60 have been canceled and claims 94-103 have been added. As such, claims 85-89 and 91-103 remain pending. It is submitted that no new matter has been added by way of the present amendments. Reconsideration of the subject application is respectfully requested in view of the above amendments and the following remarks.

Claim Objections

Claim 25 stands objected to for a typographical error. Claim 25 is canceled from the present application, thereby rendering this claim objection moot.

Support for Claim Amendments

Independent claim 85 has been amended herein, while new independent claim 94 is added, to recite a clarification of the process of "calculating the likelihood that the person displays a genetic mutation linked to the gene associated with the clinical agent," when the genetic test result value cannot be obtained from the EMR. In particular, with respect to claim 94, calculating the likelihood of the linked genetic mutation comprises the following steps:

a) "when demographic information about the patient is available in the EMR, using the demographic information to determine genetic variability of the gene within the person and basing the genetic-mutation likelihood upon the determined genetic variability;" and

b) "when demographic information about the patient is unavailable from the EMR, basing the genetic-mutation likelihood upon the genetic variability of the gene within the general population."

Support for this claim amendment may be found in the Specification, for example, at paragraphs [0040] – [0042], [0049], and [0050].

In general, proposed amendments to the claimed subject matter are not "new matter" within meaning of 35 U.S.C. § 132, unless they disclose an invention, process, or apparatus not theretofore described. Further, if later-submitted material simply clarifies or completes prior disclosure, it cannot be treated as "new matter."[1] By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, "a patent application *necessarily discloses* that function, theory or advantage, even though it says nothing explicit concerning it" (emphasis added).[2] The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.[3] Accordingly, because these proposed amendments are explicitly discussed, and/or inherent to, the procedure for providing information about the risk of an atypical event based upon genetic information, as memorialized in the Detailed Description, the newly recited subject matter is encompassed by the scope of the Specification and does not constitute new matter.

Rejections based on 35 U.S.C. § 103

A.) Applicable Authority

[1] *Triax Co. v Hartman Metal Fabricators, Inc.,* 479 F2d 951 (1973, CA2 NY); cert. denied, 94 S. Ct. 843 (1973).
[2] *See* MPEP § 2163.07; *In re Reynolds*, 443 F.2d 384 (CCPA 1971); *In re Smythe*, 480 F. 2d 1376 (CCPA 1973).
[3] *See id.*

The teachings or suggestions to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure.[4] To establish a *prima facie* case of obviousness, all the claim limitations must be taught by the prior art.[5] When determining whether a claim limitation is taught, "All words in a claim must be considered in judging the patentability of that claim against the prior art."[6] Further, in establishing a *prima facie* case of obviousness, the initial burden is placed on the Examiner: "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references."[7]

B.) Obviousness rejection based upon Internal Medicine, July 2000, Vol. 39, No. 7, pp. 523-524 to Ichikawa in view of Science, October 1999, Vol. 286, pp. 487-491 to Evans et al. and U.S. Publication No. 2002/0049772 to Reinhoff et al. and further in view of U.S. Publication No. 2002/0038227 to Fey et al. further in view of U.S. Publication No. 2002/0110823 to Hogan and further in view of U.S. Publication No. 2003/0011646 to Levine et al.

Claims 25-30, 55-60, 85-89, and 91-93 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the article in Internal Medicine, July 2000, Vol. 39, No. 7, pp. 523-524 to Ichikawa in view of the article in Science, October 1999, Vol. 286, pp. 487-491 to Evans et al. (hereinafter Evans), U.S. Publication No. 2002/0049772 to Reinhoff et al. (hereinafter Reinhoff), U.S. Publication No. 2002/0038227 to Fey et al. (hereinafter Fey), U.S. Publication No. 2002/0110823 to Hogan, and U.S. Publication No. 2003/0011646 to Levine et al. (hereinafter Levine). As the Ichikawa, Evans, Reinhoff, Fey, Hogan, and Levine references, whether taken

[4] *See* MPEP § 2143; *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).
[5] MPEP § 2143.03; *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974).
[6] MPEP § 2143.03; *In re Wilson*, 57 C.C.P.A. 1029, 1032 (1970).
[7] *Ex parte Clapp*, 227 USPQ 972, 972 (Bd. Pat. App. & Inter. 1985); *see also* MPEP §706.02(j) and §2142.

alone or in combination, do not describe, either expressly or inherently, each and every element of independent claims 85 (amended), 91 (amended), or 94 (New), or the claims that depend therefrom, the Applicants respectfully consider the pending rejection of these claims overcome, as hereinafter set forth. Further, claims 25-30 and 55-60 have been canceled by way of the present communication and, accordingly, the rejections of these claims have been rendered moot.

Independent claims 85 and 94 each recite a clarification of the process of "calculating the likelihood that the person displays a genetic mutation linked to the gene associated with the clinical agent," when the genetic test result value cannot be obtained from the EMR. In particular, with respect to claim 94, calculating the likelihood of the linked genetic mutation comprises the following steps:

a) "when demographic information about the patient is available in the EMR, using the demographic information to determine genetic variability of the gene within the person and basing the genetic-mutation likelihood upon the determined genetic variability;" and

b) "when demographic information about the patient is unavailable from the EMR, basing the genetic-mutation likelihood upon the genetic variability of the gene within the general population."

In this way, the claimed process employs a particular hierarchy of factors to seek and use in order to calculate the likelihood of the presence of a genetic mutation. Specifically, when the genetic test result value cannot be obtained, the processes of claims 85 and 94 first attempt to use demographic information and then, if unavailable, use genetic variability within the general population. Accordingly, as discussed in the Examiner Interview, genetic variability can be determined using the general population even when demographic information is unavailable from a patient's EMR.

The Office indicates that the combination of Hogan and Classen (referencing the Office Action dated June 14, 2010, issed for U.S. Application No. 10/826,595) suggests the step of calculating the likelihood that a person displays a genetic mutation based on inspecting demographic information of the patient then variability within the general population. In particular, the Office contends that Hogan teaches this step of calculating genetic-mutation likelihood by disclosing factors within a genomic profile for determining risk, such as pharmacodynamic risk or pharmacokinetic risk.[8] However, the Hogan reference clearly states that the "genomic profile" is generated by taking a sample from a subject, providing a assay to detect genetic markers, and subjecting the sample to the assay to generate the genomic profile.[9] Thus, the genomic profile requires the presence of some form of genetic test result values, while the claim elements (a) and (b) are performed in the absence of those values.

Further, the Office indicates that Classen teaches the step of calculating a risk of expressing a genetic variability by exploring the existence of the genetic variability of a gene within the general population. Specifically, the Office contends that Classen teaches that extracted data can be analyzed to calculate risk for an individual, where the analyzed data pertains to persons with similar characteristics (e.g., race, age, and gender).[10]

Classen, as cited, does not teach using genetic variability of the gene within the *general population* to calculate the likelihood that a person displays a genetic mutation. Instead, the Classen reference describes using demographic information of a patient to access statistically relevant information of a "subgroup" in which the patient is a member. In other words, Classen describes inspecting an "adverse event database" before exposing a medical product to a patient

[8] *Hogan* at ¶ [0013].
[9] *Hogan* at ¶ [0012].
[10] Office Action at pg. 14, ll. 19-22.

by searching the database with demographic information from the patient.[11] Accordingly, as discussed in the Examiner Interview, the cited portions of the Classen reference do not account for a situation where demographic information is unavailable such that a subgroup of the patient cannot be determined. Moreover, the cited portions of the Classen reference do not describe or suggest using the "genetic variability of the gene within the general population to calculate the likelihood that a person displays a genetic mutation." Accordingly, the Classen reference fails to cure the stated deficiencies of the primary reference, Hogan.

In view of the above, it is respectfully requested that the 35 U.S.C. § 103(a) rejection of claim 85 be withdrawn. Further, claims 85 and 94 are believed to be in condition for allowance and such favorable action is respectfully requested. Each of claims 86-89 and 95-103 depend, either directly or indirectly, from one of independent claims 85 and 94, respectively. As such, these claims are believed to be in condition for allowance at least by virtue of their dependency.[12]

Independent claim 91 is amended to clarify the method of determining whether to automatically generate a low-risk clinical response or a high-risk clinical response, as well as the actions to be conducted for each response. In particular, the method is invoked "when the person has been exposed to one or more of the agents on the list of risk-associated agents." Upon invocation, the method involves "ascertaining whether to automatically generate a low-risk clinical response or a high-risk clinical response based on whether a dosage of the one or more agents exceeds a predetermined dangerous level." Initially, "[w]hen the person has been exposed to a dosage of the one or more agents on the list of risk-associated agents that is above

[11] *See* Classen cols. 5 and 6.
[12] *See* 37 C.F.R. § 1.75(c) (2006).

the predetermined dangerous level, automatically generating the high-risk clinical response." The actions that occur upon generating a high-risk clinical response include the following:

a) "reducing the dosage of the agent to an amount below the predetermined dangerous level;" and

b) "placing an alternative order for an agent that is absent from the list of risk-associated agents."

If it is determined that a high-risk clinical response is not warranted, the method involves "automatically generating the low-risk clinical response that includes performing the actions" including the following:

a) "adding a comment to the person's electronic medical record indicating that no risks were determined from the genetic test result value;" and

b) "outputting an interpretation at the GUI of the low-risk clinical response, wherein the interpretation indicates the genetic test result value is not associated with any know risks."

In this way, the decision of whether conduct a low-risk or high-risk clinical response is based on two criteria (i.e., whether the person has been exposed to an agent on the list of risk-associated agents, and whether a dosage of the agent exceeds a predetermined dangerous level). Further, once the decision to conduct the low-risk or high-risk clinical response is made, there are specific actions that are invoked for each response.

Initially, the Office states that Fey does not explicitly teach ascertaining whether to automatically generate a low-risk or high-risk clinical response based on patient exposure to one or more risk-associated agents. Yet, the Office contends that the decision to implement a high-risk or low-risk clinical response is obvious simply "because the goal of the health data management system is to enable a consumer/client to better monitor their health at a genetic

level."[13] Applicants assert that the general statement above is insufficient to render the specific test for selecting a high-risk and low-risk clinical response obvious. Moreover, the Office does not address the second criteria of whether a "person has been exposed to a dosage of the one or more agents on the list of risk-associated agents that is above the predetermined dangerous level" to determine whether to automatically generate a low-risk or high-risk clinical response.

Further, once the determination of high-risk vs. low-risk made, none of the cited references disclose carrying out the actions "(a) reducing the dosage of the agent to an amount below the predetermined dangerous level; and (b) placing an alternative order for an agent that is absent from the list of risk-associated agents" when a high-risk clinical response is selected. Even further, once the determination above is made, none of the cited references disclose carrying out the actions "(a) adding a comment to the person's electronic medical record indicating that no risks were determined from the genetic test result value; and (b) outputting an interpretation at the GUI of the low-risk clinical response," where "the interpretation indicates the genetic test result value is not associated with any know risks," with the low-risk clinical response.

Further yet, the use of a dual-response system based of the two criteria mentioned above (the patient was exposed to a dosage of the one or more agents on the list of risk-associated agents, and the dosage is above the predetermined dangerous level) was not inherent to the provision health care at the time of invention. Instead, using these two criteria is a new and advantageous way to use the results of the processes in claim 91 to affect the treatment of the patient (i.e., implementing one specific grouping of actions (high-risk) or another specific grouping of actions (low risk)).

[13] Office Action at pg. 13.

Last, the Office contends that the specific test (using the two criteria) for selecting a low-risk or a high-risk clinical response is rendered obvious because Hogan teaches generally adjusting dosages and substituting medications in order to avoid medical complications at paragraph [0008], [0036], and [0037]. Applicants assert that recited test for determining whether a low-risk or a high-risk clinical response is warranted, as well as the particular actions associated with each response, are considerably different from Hogan's general statements above. Further, the Office has failed to support the instant rejection under 35 U.S.C. 103 via a clear articulation of the reason(s) why the claimed invention of claim 91 would have been obvious, as required by MPEP § 2142.[14] That is, "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness,"[15] and it is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.[16] As such, the asserted general conclusion concerning what was known without some concrete evidence in the record to support this finding will not support an obviousness rejection.[17] The Office's obviousness rejection of claim 91 is therefore considered traversed; accordingly, the Office must provide documentary evidence if the rejection is to be maintained.[18]

Accordingly, for at least these reasons, it is respectfully requested that the 35 U.S.C. § 103(a) rejection of independent claim 91, as amended, be withdrawn. Claims 92 and 93 depend from independent claim 91. As such, claims 92 and 93 are believed to be in condition for

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[14] *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007) (noting that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit).
[15] *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).
[16] *In re Zurko*, 258 F.3d 1379, 1385 (Fed. Cir. 2001), *see also* MPEP § 2144.03.
[17] MPEP § 2144.03(B); *In re Lee*, 277 F.3d 1338, 1344 (Fed. Cir. 2002).
[18] 37 C.F.R. § 1.104(d)(2).

allowance at least by virtue of its dependency.[19] Consequently, withdrawal of the obviousness rejection and allowance of claims 91-93 are respectfully requested.

[19] *See* 37 C.F.R. § 1.75(c) (2006).

CONCLUSION

For at least the reasons stated above, each of claims 85-89 and 91-103 is believed to be in condition for allowance. Applicants respectfully request withdrawal of the pending rejections and allowance of the claims. If any issues remain that would prevent issuance of this application, the Examiner is urged to contact the undersigned—by telephone at 816.559.2136 or via email at btabor@shb.com (such communication via email is herein expressly granted)—to resolve the same prior to issuing a subsequent action.

A One-Month Extension of Time fee is submitted herewith. It is believed that no additional fee is due in conjunction with the present communication. However, if this belief is in error, the Commissioner is hereby authorized to charge any amount required to Deposit Account No. 19-2112, referencing attorney docket number CRNI.83071.

Respectfully submitted,

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